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DISCUSSION.

THE DILEMMA OF DARWINISM.

NATURAL selection is an ambiguous principle. It offers an incomplete theory of life which, if completed in the way its language suggests, becomes irrational. The dilemma has been noted from the first. The present essay aims to restate it briefly.

The customary formula—the natural selection of fortuitous variations—names a phenomenon, variation, and its outcome, 'selection'. It asserts that from among any variations presented by new individuals of a type, those only are 'selected', that is, taken up into the type, which reappear in offspring. As to how it happens that any so reappear the principle is silent. Its emphasis is upon the familiar fact of premature death among organisms displaying heredity and variation.

Although void of new content, the principle was far from barren of new content. Aside from the incompleteness of selection as a theory of life, the achievement of Darwin may be compared to that of Copernicus who reformulated in simpler terms the same phenomena of planetary motion that had been described with equal truth but in a more complex way by Ptolemy. Like the Copernican system, the principle of selection by reformulating familiar facts revolutionized men's thoughts throughout a whole domain of inquiry. It offered within its limits a totally new explanation of the adaptation of living organisms to the conditions of their life.

It is often apparent that, had a certain trait of a certain organism been lacking, the organism could hardly have lived to maturity under existing conditions. Before Darwin this fact had commonly been explained on the theory that such a trait was an essential element in the type. Darwin suggested instead that there might have existed similar organisms lacking the trait who had died without leaving descendants. The idea was original with Darwin, and simultaneously with Wallace, but was not new to the world. It appears in the doctrine of Empedocles (fifth century B.C.) that perfect animals are produced by the extinction of the imperfect; and is included under the doctrine of St. Matthew's Gospel, "For whosoever hath (*e.g.*, a favorable trait) to him shall be given, and he shall have more abundance (*e.g.*, offspring); but whosoever hath not (*e.g.*, who lacks the trait in question) from him shall be taken away even that he hath (*e.g.*, life)."

A veil was at once lifted from the history of life. Instead of a number of narrow lines of descent constituting fixed species, the past world of living organisms spread out into a vast nexus of types merging into one another by countless intermediaries. So simple, so enlightening and yet so totally unsuspected a turn of thought was a cardinal example of the power of genius to find diamonds by the wayside.

The question of origin remained outside the scope of the new viewpoint. A doctrine of selection is a doctrine of outcome, not of origin. Suppose certain organisms existing under certain conditions. Why, when the conditions change, should any variations at all appear in new individuals capable of securing the continued life of the type?

The word 'fortuitous' in the formula of selection suggests the answer. Instead of using it figuratively to mean "occurring by laws unknown," we may take it literally to mean "occurring without law." A law is the negation of a possibility. The law of gravitation, for example, asserts that matter which does not attract other matter according to the inverse square does not exist. Variations occurring without law are variations embodying all possibilities. One such possibility is the variation needed for the survival of a given type under given changed conditions; and the principle of selection on the new interpretation of the word 'fortuitous' seems to account for its appearance in that case.

Far from it. To assert that the variations of living beings are literally fortuitous is indeed to assert that all possible variations are actual, but it is not to assert that any given variation is actual at any given time and place. Perhaps in the history of some distant globe the type recurs and with it the variation that would have helped it here; but that fact does not avail a denizen of earth. What is needed is that every possible variation should be illustrated by the organisms composing the type at any given time and place: plainly an extravagant hypothesis and one which a moment's thought proves irrational. However great the number of organisms composing a type at any time and place, it is finite, while the number of possible variations is infinite. Whatever variations the actual organisms presented, others are still imaginable. The formula of selection based on chance denies in the word 'variations' taken historically, what it affirms in the word 'fortuitous' taken literally. It is in contradiction with itself.

Thus ends the effort to bring the question of origin within the scope of the principle of selection by the literal interpretation of the word 'fortuitous'. It might have been expected so to end. Evidence points to the exclusion of possibilities and the effort to admit them all on evidence is antecedently irrational. The question why under any given change of conditions there are any survivors of any given existing type of life cannot be answered rationally by invoking chance. The Darwinian principle and the discoveries it has inspired have immensely extended our notion of the past of life, beyond the pre-Darwinian notion of fixed species; but in turn this wider range of life has its own fixed limits. The doctrine of special creation, become a doctrine of general creation, finds its old place vacant.

These two points of view, the limited and the unlimited, correspond to the two possible final answers to the question of the origin of things. No question of origin admits of a final answer of fact. For of any given other fact which we may assign as origin the question may always be repeated. What is the origin of this other fact? Yet the mind has two ways of escape from the endless sequence. Asking whence anything comes, it may answer either "Everywhence you can name", or "Nowhence you can name." These two are the sole final answers to the question of origin. One is the hypothesis of evolution, the other that of creation. Each leaves no further question open. Evolutionary origin is origin in everything you can think of, and to ask the origin of everything you can think of is to expect to think of something else than everything you can think of, which is absurd. Creative origin in turn is origin in nothing you can think of, and to ask the origin of nothing you can think of is to have no question before the mind. The mind itself becomes the object of its own search.

It is the mind itself that rewards our search on the evolutionary theory also. No powers of observation can keep abreast of the capacities of the mind to conceive of possibilities. In any universe as seen by the finite minds there must always be possibilities lacking, always observable laws. At best finite minds could observe such things only as lasted long enough to be noted. Moreover, comprehension itself is the act of framing laws; knowing is law-giving. Briefly, a reign of law is the necessary aspect of its absence. This evolutionary idea is a sublime one and liberating to the thoughts. All the vast mass of human knowledge may be but an exploration of the face of chaos. The orderly universe we know may be but a figment of our finitude.

The other final answer to the question of origin remains as an alternative. Law is the necessary face of chaos. True; but the proposition cannot be simply converted. Chaos is not the necessary substance of law. Reality itself may be a realm of banished possibilities. Such is the theory of creation, the other final answer to the question of origin. If we pursue the question, we shall ultimately come to something whose origin is nowhence we can name.

These two final answers, Evolution and Creation, possess, *prima facie,* a precisely equivalent logical standing; but *prima facie* only; and for two reasons. The notion of evolution from everything is not incompatible with any evidence; but it is irrational to expect any evidence to look toward it. Moreover, the attempt to make a consistent conception out of the notion itself encounters a logical difficulty. When worked out apodictically, the actuality of all possible combinations of the characters of things appears a logically contradictory conception.[1] On the other hand, in the theory of creation from nothing we are dealing with a logically consistent idea, that involved in negating the relation of product and source between a given phenomenon and any given other. Further we accept the result of evidence as expressing reality itself. On both accounts the theory of creation from nothing stands as the sole tenable answer to the question of ultimate origin.

The conclusions of this discussion are as follows:

(1). The principle of selection is a partial reformulation of known biological fact, covering the fate of variations, but not their genesis; (2). In the attempt to complete the principle by a fortuitous theory of the genesis of variations, it becomes irrational.

Finally, the theory of evolution may perhaps be rationally held; but any evidence counts against it, and it leads into a tangle of contradiction which must first be unravelled. In any event, the theory of creation from nothing alone harmonizes with any view that finite beings can ever attain of the all of things.

[1] The argument referred to is that of Charles S. Peirce, to whom William James ascribed the original suggestion of the philosophy of Pragmatism. It is given in the fifth of his papers on "Illustrations of the Logic of Science," published in the *Popular Science Monthly* in 1877 and 1878.

At the outset the doctrine of selection was greeted by at least a tacit recognition of the dilemma—truism or fallacy. Huxley is reported to have said that his first idea on hearing of Darwinism was, "How stupid not to have thought of that before!" It seems indeed stupid never before to have suspected that the fact of premature death must have a meaning indefinitely greater than is expressed in the saying "Whom the gods love die young," or than was accorded it even by Malthus. John Stuart Mill records in his Essay on Theism that all he cared to say about Darwinism was "It is not so absurd as it looks." This was true since it is absurd only when stretched to bursting by the evolutionary admixture. The faint praise of these two preëminent minds was prophetic of the estimate which the future will place at once upon the immense generalization simply presented in the Darwinian principle and upon the imposing nullities of evolutionary ratiocination that have since sheltered themselves under the reputation of a great naturalist.

POSTSCRIPT.

The doctrine of natural selection has just been recalled to the attention of magazine readers in America. The late John Burroughs, in his essay, "A Critical Glance Into Darwin", printed in the *Atlantic Monthly* for August, 1920, wrote that Darwin "has already been shorn of his selection doctrines as completely as Samson was shorn of his locks;" and Professor C. C. Nutting has since as vigorously denied the claim in an essay entitled "Is Darwin Shorn?" printed in the *Scientific Monthly* for February, 1921.

In agreement with the first conclusion of the present essay, Burroughs assumes that a complete theory of life demands a doctrine of the genesis of variations as well as of their fate. Selection "cannot give the wing to the seed, . . . or the scale to the fish; but it can perfect all these things." In agreement with the second conclusion above, Burroughs repudiates, as Darwin did, the illogical notion that the history of life on this planet can be explained by selection from variations arising independently of law. Speaking of cause and effect he asks, "Is law in this sense ever suspended or annulled?" But he holds that to call variations 'fortuitous' is not enough, even if we mean by that term "governed by laws unknown" as Darwin did. According to Burroughs, they exemplify also Design: "they are adaptive from the start." Thus he adds something to Darwin's selection doctrines; rather fits a crown to them than shears them off. He leaves the unknown laws intact by which Darwin thought variations arose, but assumes besides a "Cosmic Mind" acting through them.

Professor Nutting, for his part, prefers Darwin's doctrines unadorned, and thinks that other naturalists do also. Variations, he holds, are fortuitous purely and simply, in the metaphoric Darwinian sense of "occurring by laws unknown."

Possibly Burroughs's crown will never become visible to Professor Nutting and others; but certainly the wig of literal fortuity which still to many people obscures Darwin's theoretic temples will eventually be known to all for the false hair it is.

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